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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,782	12/27/2000	Robert Charles Skerritt	602985.1002	4137

7590 04/17/2003  
J. David Dainow  
Amster, Rothstein & Ebenstein  
90 Park Avenue  
New York, NY 10016

EXAMINER

HAMDAN, WASSEEM H

ART UNIT PAPER NUMBER

2854

DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/720,782

Applicant(s)

SKERRITT ET AL.

Examiner

Wasseem H Hamdan

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 8-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-14, 16-24 and 27 is/are rejected.
- 7) ☒ Claim(s) 15, 25 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 16 August 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 17.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

## Interview Summary

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09/720,782

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2858

All participants (applicant, applicant's representative, PTO personnel):

(1) Wasseem H Hamdan.

(3) Mr. Drew H. Hirshfeld.

(2) Mr. Abraham Kasdan (Registration No. 32,997).

(4) \_\_\_\_\_.

Date of Interview: 03 April 2003.

Type: a) ☒ Telephonic b) ☐ Video Conference

c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.

If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: 8-27.

Identification of prior art discussed: 5,701,253.

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Discussed the novelty of the claims against the Mayell et al. reference (US Patent 5,701,253).

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

WH  
Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

#### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

##### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

##### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case unless both applicant and examiner agree that the examiner will record same. Where the examiner agrees to record the substance of the interview, or when it is adequately recorded on the Form or in an attachment to the Form, the examiner should check the appropriate box at the bottom of the Form which informs the applicant that the submission of a separate record of the substance of the interview as a supplement to the Form is not required.

It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

#### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Art Unit: 2854

**Part III - DETAILED ACTION**

***Request for Continued Examination***

1. This office action is in response to applicant's "Request for Continued Examination Under 37 C.F.R. section 1.114 filed on March 10, 2003.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 17 recites the limitation "the integrated circuit further .... " in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 8, 19 and 22, are rejected under 35 U.S.C. 102(b) as being anticipated by Morrisett (US Patent 5,930,093).

Art Unit: 2854

Regarding claims 8 and 22, Morrissett discloses a residual current detection device [FIG. 7] for detecting current imbalances [FIG. 7 (45)] between currents flowing to a load in one or more phase lines and from said load in a neutral line, comprising:

a plurality of resistive shunts [FIG. 7 (42)], each connected in series with one of said phase lines [FIG. 7 (left line and 42)] and neutral line [FIG. 7 (right line and 42)]; and

circuitry for detecting an imbalance [FIG. 7 (45 and 46)] between said currents flowing through the resistive shunts [FIG. 7 (42)].

Regarding claims 19, Morrissett discloses the actuator for performing the function of a conventional circuit breaker [FIG. 1; column 2, lines 40-44].

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9-14, 18, 20, 21, 23, 24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Morrissett (US Patent 5,930,093) as applied to claims 8 and 22 above, and further in view of Adame et al. (US Patent 6,058,354).

Art Unit: 2854

Regarding claims 9 and 23, Morrissett discloses the essential elements of the claimed invention. However, Morrissett does not explicitly disclose a voltage sensor provided for each of the resistive shunts for sensing a voltage developed across the resistive shunt and generating signals indicative of the current flowing through the resistive shunt; and a processor for receiving the signals from the voltage sensors and processing the signals to detect the imbalance between the currents flowing through the resistive shunts. Adame et al. discloses a voltage sensor [FIG. 1 (5)] provided for each of the lines [FIG. 1 ( $v_1$ ,  $v_2$ ,  $v_3$ )] for sensing a voltage and generating signals indicative of the current flowing through the line [FIG. 1 ( $v_1$ ,  $v_2$ ,  $v_3$ ); (5)]; and a processor [FIG. 1 (2)] for receiving the signals from the voltage sensors [FIG. 1 (5)] and processing the signals to detect physical magnitudes of voltage and current input signals to derive various desired parameters and functions from the input signals [FIG. 1; column 2, lines 11-16]. It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to modify the teachings of Morrissett by including the voltage sensor and the processor as claimed above, the skilled artisan would have been motivated to modify Morrissett as above for the purpose of obtaining the physical magnitudes of voltage and current input signals [Adame et al.: column 2, lines 11-16].

Regarding claims 10 and 24, Morrissett discloses the essential elements of the claimed invention. However, Morrissett does not explicitly disclose that the voltage sensor comprises an

Art Unit: 2854

analog-to- digital converter for producing digital signals as the signals supplied to the processor. Adame et al. discloses the voltage sensor comprises an analog-to-digital converter for producing digital signals as the signals supplied to the processor [FIG. 1 (3); column 2, lines 64-65]. It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to modify the teachings of Morrisett by including an analog-to-digital converter as claimed above,, the skilled artisan would have been motivated to modify Morrisett as above for the purpose of converting the signal from analog to digital [Adame et al.: column 2, lines 62-65].

Regarding claims 11, Morrisett discloses the essential elements of the claimed invention. However, Morrisett does not explicitly disclose that the analog-to-digital converter is connected to the processor. Adame et al. discloses analog-to-digital converter is connected to the processor [FIG. 1 (3, 2)]. It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to modify the teachings of Morrisett by including an analog-to-digital converter is connected to the processor,, the skilled artisan would have been motivated to modify Morrisett as above for the purpose of converting the signal from analog to digital [Adame et al.: column 2, lines 62-65].

Regarding claim 12, Morrisett discloses the resistive shunt comprises a composite strip having conductive portions at its ends and a resistive portion in the middle interconnecting the conductive portions [FIG. 7].



Art Unit: 2854

Regarding claims 13 and 27, Morrissett discloses the essential elements of the claimed invention. However, Morrissett does not explicitly disclose analog to digital converter for each shunt includes a delta-sigma modulator for producing as the digital signals a high-frequency one-bit digital data stream. Adame et al. discloses analog to digital converter for each shunt includes a delta-sigma modulator [FIG. 2 (11); column 5, lines 1-8]. It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to modify the teachings of Morrissett by including a delta-sigma modulator for producing as the digital signals a high-frequency one-bit digital data stream as claimed above, the skilled artisan would have been motivated to modify Morrissett as above for the purpose of producing as the digital signals a high-frequency one-bit digital data stream.

Regarding claim 14, Morrissett discloses the essential elements of the claimed invention. However, Morrissett does not explicitly disclose decimation filtering for converting the high frequency one-bit digital data stream to a lower frequency multi-bit digital data stream. Adame et al. discloses decimation filtering for converting the high frequency one-bit digital data stream to a lower frequency multi-bit digital data stream [FIG. 2 (12); column 5, lines 1-8]. It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to modify the teachings of Morrissett by including a delta-sigma modulator for producing as the digital signals a high-frequency one-bit digital data stream as claimed above, the skilled artisan

Art Unit: 2854

would have been motivated to modify Morrissett as above for the purpose of determining the currents [Adame et al.: column 5, lines 1-8]

Regarding claims 18 and 20, Morrissett discloses, Morrissett discloses the essential elements of the claimed invention. However, Morrissett does not explicitly disclose means for measuring power consumption by the load. Adame et al. discloses means for measuring power consumption by the load [FIG. 1; column 1, lines 8-14]. It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to modify the teachings of Morrissett by including means for measuring power consumption by the load as claimed above, the skilled artisan would have been motivated to modify Morrissett as above for the purpose of measuring the physical electrical magnitudes [Adame et al.: column 1, lines 18-23].

Regarding claims 21, Morrissett discloses the actuator for performing the function of a conventional circuit breaker [FIG. 1; column 2, lines 40-44].

8. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Morrissett (US Patent 5,930,093) in view of Adame et al. (US Patent 6,058,354) as applied to claims 9-14, 18, 20, 21, 23, 24 and 27 above, and further in view of Cobb, III et al. (US Patent 4,866,559).

Art Unit: 2854

Regarding claim 16, Morrissett and Adame et al. discloses the essential elements of the claimed invention. However, Morrissett and Adame et al. does not explicitly disclose the conductive portions are comprised of copper and the resistive portion is comprised of manganin. Cobb, III et al. discloses the conductive portions are comprised of copper and the resistive portion is comprised of manganin [column 3, lines 9-26]. It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to modify the teachings of Morrissett and Adame et al. by including that the conductive portions are comprised of copper and the resistive portion is comprised of manganin, the skilled artisan would have been motivated to modify Morrissett and Adame et al., because the conductive portions are comprised of copper and the resistive portion is comprised of manganin are good conductive material.

Regarding claim 17, it appears that the applicant meant to depend claim 17 from claim 15, because claim 15, claims the integrated circuit. If this is the case, after resolving the 112 rejection, it would be objected to the same as claim 15 discussed below.

9. Claims 15, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Morrissett (US Patent 5,930,093) in view of Adame et al. (US Patent 6,058,354) as applied to claims 9-14, 18, 20, 21, 23, 24 and 27, above, and further in view of Granville (US Patent 5,181,026).

Art Unit: 2854

Regarding claims 15, 25 and 26 , Morrissett and Adame et al. discloses the essential elements of the claimed invention. However, Morrissett and Adame et al. does not explicitly disclose that the analog-to-digital converter is an integrated circuit. Granville discloses that the analog-to-digital converter is an integrated circuit [column 12, lines 29-30]. It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to modify the teachings of Morrissett and Adame et al. by including that the analog-to-digital converter is an integrated circuit, the skilled artisan would have been motivated to modify Morrissett and Adame et al., for the purpose of having smaller size circuitry and more reliable circuitry. Also in this case the A/D converter has to be mounted on the shunt in order to measure the current through the shunt.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wasseem Hamdan whose telephone number is (703) 305-3968. The examiner can normally be reached Monday-Thursday from 700 AM-400 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Drew H. Hirshfeld can be reached on (703) 305-6619.

The fax phone number for this Art Unit is (703)308-7722 or (703)308-7724.

Any inquiry of a general nature or relating to the status of this application should be directed to the Receptionist at (703) 305-3800.

Art Unit: 2854

**11. Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 308-7722 or (703) 308-7724, or (703) 305-3431, or (703) 305-3432 (for

formal communications intended for entry, please label "FORMAL" and sign as

attorney of record)

**Or:**

(703) 305-9724 (for informal or draft communications, please label "PROPOSED"

or "DRAFT" and prominently label PLEASE DELIVER DIRECTLY TO

EXAMINER)


Hand-delivered responses should be brought to Crystal Plaza 4 [fourth Floor

(Receptionist)], 2201 South Clark Place, Arlington, VA. 22202.



Wasseem H. Hamdan

April 07, 2003



ANDREW H. HIRSHFELD  
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